



National Research University Higher School of Economics (HSE)

Basic Curriculum

Field of study 01.04.02 Applied Mathematics and Informatics  
 Educational Programme "Financial Technology and Data Analysis"  
 Trajectories: "Financial Technologies and Data Analysis"  
 Implementing unit: Faculty of Computer Science, HSE - Moscow

APPROVED  
 18.05.2022  
 Vice Rector  
 ROSHCHIN S.Y.  
 Signed with EDS

Years of Study: 2022/2023 - 2023/2024

Length of Programme: 2 years

Mode of Study: Full Time

Degree: Master's degree / MBA

Block Code	Course	Subject type	Credits	Credits by Years		Planned Educational Programme Development Results
				1	2	
	Degree Programme		120,00	60,00	60,00	
	Financial Technologies and Data Analysis (General track)		120,00	60,00	60,00	
	Key Seminars		15,00	6,00	9,00	
1	Mentor's Seminar "Financial Technologies and Data Analysis"	C	15,00	6,00	9,00	GPC-4.AMI, PC-1, PC-3, PC-7, UC-1, UC-2, UC-3, UC-4
	Internship		21,00	3,00	18,00	
	Project Internship		3,00	3,00		
1	Course project	C	3,00	3,00		GPC-1.AMI, GPC-2.AMI, GPC-3.AMI, GPC-4.AMI, PC-1, PC-2, PC-3, PC-4, PC-5, PC-6, PC-7, PC-8, PC-9, UC-1, UC-2, UC-3, UC-4, UC-5, UC-6
	Research Internship		18,00		18,00	
1	Graduation Work	C	18,00		18,00	GPC-1.AMI, GPC-2.AMI, GPC-3.AMI, GPC-4.AMI, PC-1, PC-2, PC-3, PC-4, PC-5, PC-6, PC-7, PC-8, PC-9, UC-1, UC-2, UC-3, UC-4, UC-5, UC-6
	Major		63,00	48,00	15,00	
	Basic Components		36,00	27,00	9,00	
1	Text Analysis. Generative Models	C	6,00		6,00	GPC-3.AMI, PC-1, PC-4, PC-6, PC-8, UC-4
2	Bayesian Methods for Data Analysis (offered in a foreign language)	C	3,00		3,00	GPC-3.AMI, PC-1, PC-4, PC-6, UC-4
3	Basics of Risk Management	C	6,00	6,00		GPC-4.AMI, PC-3, PC-7, UC-2, UC-3
4	Machine Learning	C	6,00	6,00		GPC-3.AMI, PC-3, PC-5, UC-1

5	Financial Technology	C	3,00	3,00		GPC-4.AMI, PC-4, PC-8, PC-9, UC-6
6	Deep Learning	C	6,00	6,00		GPC-4.AMI, PC-1, PC-4, PC-5, PC-6, UC-2, UC-3
7	Algorithms for processing large data	C	3,00	3,00		GPC-4.AMI, PC-3, PC-5, PC-6, PC-9, UC-2, UC-6
8	Machine Learning in Finance	C	3,00	3,00		GPC-4.AMI, PC-3, PC-5, PC-6, UC-2
Elective Courses. 1 year 1st semester			9,00	9,00		
1	Macroeconomics	E	3,00	3,00		GPC-4.AMI, PC-4, UC-6
2	Econometrics	E	6,00	6,00		GPC-4.AMI, PC-4, UC-6
3	Programming in Python and Working with Linux	E	3,00	3,00		GPC-4.AMI, PC-2, PC-3, UC-4
4	Random Processes Basics and SDE-based Simulation Models	E	3,00	3,00		GPC-4.AMI, PC-7, PC-8, UC-6
5	Database Theory	E	6,00	6,00		GPC-4.AMI, PC-2, PC-3, PC-7, UC-2, UC-6
Elective Courses. 1 year 2nd semester			12,00	12,00		
1	Time Structured Data Analysis	E	6,00	6,00		GPC-4.AMI, PC-4, PC-7, UC-2, UC-6
2	Simulation Modeling of Financial and Economic Systems	E	6,00	6,00		GPC-4.AMI, PC-2, PC-7, PC-8, UC-2, UC-3, UC-6
3	Structural Analysis and Visualization of Networks (offered in a foreign language)	E	6,00	6,00		GPC-4.AMI, PC-1, PC-4, PC-6, UC-2
Elective Courses. 2 year			6,00	6,00		
1	Recommender Systems	E	3,00	3,00		GPC-2.AMI, PC-3, PC-4, PC-8, UC-2
2	Reinforcement Learning	E	3,00	3,00		GPC-2.AMI, PC-1, PC-4, PC-7, UC-1, UC-4
3	Deploying ML Models	E	6,00	6,00		GPC-3.AMI, PC-3, PC-4, PC-6, UC-1, UC-2
4	Practical Application of AI Method	E	3,00	3,00		GPC-3.AMI, PC-3, PC-6, UC-2
Magolego			15,00	3,00	12,00	
1	All-university Pool MAGOLEGO Courses	E	15,00	3,00	12,00	GPC-4.AMI, PC-1, PC-4, UC-2, UC-3, UC-5, UC-6
Final State Certification (FSC)			6,00	6,00		
1	Final Qualification Paper	C	6,00	6,00		GPC-1.AMI, GPC-2.AMI, GPC-3.AMI, GPC-4.AMI, PC-1, PC-2, PC-3, PC-4, PC-5, PC-6, PC-7, PC-8, PC-9, UC-1, UC-2, UC-3, UC-4, UC-5, UC-6

**Curriculum agreed:**

Academic Supervisor

MASYUTIN A.A.

06.05.2022

Dean

ARZHANTSEV I.V.

06.05.2022

Head of Centre for  
Educational Model Design

LEPESHKIN I.A.

16.05.2022

\* Subject type:

Compulsory course

C

Elective course

E